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EXAMINER	
BONANTO, GEORGE P	
ART UNIT	**PAPER NUMBER**
2855	

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/827,220	SHAW ET AL.	
	Examiner	Art Unit	
	George P. Bonanto	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 07 October 2005.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1,3-13,16-32 and 34-38 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,3-13,16-32 and 34-38 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 19 April 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 16 and 38 are objected to because of the following informalities: claim element "the information" lacks antecedent basis. Appropriate correction is required.

Claims 17 and 18 are objected to because of the following informalities: claim 17 fails to further limit claim 16.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-13, 16-32 and 34-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, or under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, or both. Specifically, the specification does not describe the first or second transmitting rate being greater than the respective first or second sample rate. It appears, from paragraph 28 of the specification, that the claim was intended to recite that the first transmitting rate is less than the first sample rate, and that the second transmitting rate is less than the second sample rate. For the purpose of examination, the examiner assumes that the recitation of the first and second transmitting rates being less than the respective first and second sample rates is intended.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, 16-20, 30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,663,496 to Handfield et al.

As to claim 1, Handfield et al. disclose a method comprising operating a tire pressure monitoring system in a first operating mode (system off, or system in power saving mode; col. 11, line 35 to col. 12, line 2) wherein the tire pressure monitoring system is implemented in a motorized vehicle (col. 1, lines 16 and 21) using a piezoelectric sensor to sense vibration (piezo-electric element; col. 11, lines 35-38) determining that an output signal of the piezoelectric sensor is above a predetermined threshold (active only when vehicle velocity is above a certain threshold; col. 11, lines 39-41) setting the tire pressure monitoring system to a second operating mode based upon the determination that an output signal of the piezoelectric sensor is above a predetermined threshold (on or normal mode when vehicle speed above certain threshold; col. 11 lines 35-41) wherein during the first operating mode, an output of a first sensor is sampled at a first sample rate and during the second operating mode the output of the first sensor is sampled at a second sample rate (col. 11, line 35 to col. 12, line 2 and col. 6, lines 46-59) transmitting information to a controller system of the motorized vehicle at a first transmitting rate during the first operating mode (power saving mode; col. 11, line 65 and transmitter activated with a frequency) wherein the first transmitting rate is less than the first sample rate (sensor is sampled

at a higher rate than the transmission rate, the result of which can trigger unscheduled transmissions; col. 11, lines 25-34 and 49-68) and transmitting information to the controller system of the motorized vehicle at a second transmitting rate during the second operating mode, wherein the second transmitting rate is greater than the first transmitting rate (col. 11, lines 64-67) and is less than the second sample rate (transmitter unit transmits data to the receiver of the controller at periodic intervals; col. 11, lines 10-14 and sensor is sampled at a higher rate than the transmission rate, the result of which can trigger unscheduled transmissions; col. 11, lines 25-34 and 49-68).

As to claim 3, Handfield et al. further disclose that the first sample rate is slower than the second sample rate (col. 11, line 64 to col. 12, line 2).

As to claim 4, Handfield et al. further disclose that the first sensor is a tire pressure sensor (pressure sensor 32; Fig. 2).

As to claim 5, Handfield et al. further disclose that the first sensor is a temperature sensor (temperature sensor 34; Fig. 2).

As to claim 6, Handfield et al. further disclose that the piezoelectric sensor senses random vibration caused by a wheel rotating over a surface (col. 11, lines 35-38).

As to claim 16, Handfield et al. disclose a tire pressure monitoring system comprising a first sensor having an output for providing an indication of a sensed condition of a wheel (pressure sensor 32 or temperature sensor 34; col. 6, lines 47-48 and Fig. 2) a motion detection system, the motion detection system provides a motion indication indicative of wheel rotation (power signal from battery eliminator indicates wheel motion; col. 12, lines 9-19) the motion indication is utilized for placement of the tire pressure monitoring system in a first operating

mode or a second operating mode (system either on or off or in power saving mode; col. 11, lines 38-41 and lines 61-66) wherein the motion detection system further comprises a piezoelectric sensor for sensing vibration of a wheel rotating over a surface (col. 12, lines 9-16) the piezoelectric sensor having an output to provide an output signal indicative of an amplitude of the sensed vibration (signal from bridge rectifier; col. 12, lines 16-19) wherein the motion detection system utilizes the output signal in providing the motion indication (col. 11, line 35 to col. 12, line 2) a controller (function generator 30 and detection circuits 36 and 38) wherein the controller samples an indication of the sensed condition as sensed by the first sensor at a first rate during the first operating mode and wherein the controller samples an indication of the sensed condition as sensed by the first sensor at a second rate in the second operating mode (system off, or system in power saving mode, col. 11, line 35 to col. 12, line 2 and col. 6, lines 46-59) wherein the second sample rate is greater than the first sample rate (col. 11, line 64 to col. 12, line 2) and a transmitter operably coupled to the controller (transmitter 22, Fig. 1) wherein the controller initiates transmitting by the transmitter of the information at a first transmitting rate during the first operating mode (power saving mode; col. 11, line 65 and transmitter activated with a frequency) wherein the first transmitting rate is less than the first sample rate (sensor is sampled at a higher rate than the transmission rate, the result of which can trigger unscheduled transmissions; col. 11, lines 25-34 and 49-68) wherein the controller initiates transmitting by the transmitter of the information at a second transmitting rate during the second operating mode wherein the second transmitting rate is greater than the first transmitting rate (col. 11, lines 64-67) and is less than the second sample rate (transmitter unit transmits data to the receiver of the controller at periodic intervals; col. 11, lines 10-14 and sensor is sampled at a higher rate than the

transmission rate, the result of which can trigger unscheduled transmissions; col. 11, lines 25-34 and 49-68).

As to claim 17, Handfield et al. further disclose that the second sample rate is higher than the first sample rate (col. 11, line 64 to col. 12, line 2).

As to claim 18, Handfield et al. further disclose that the second transmitting rate is greater than the first transmitting rate (col. 11, lines 64-67).

As to claim 19, Handfield et al. further disclose that the first sensor is a pressure sensor for sensing air pressure inside a tire of a wheel (col. 1, lines 16-37).

As to claim 20, Handfield et al. further disclose that the first sensor is a temperature sensor for sensing temperature inside a tire of a wheel (col. 2, lines 10-14).

As to claim 30, Handfield et al. further disclose that the tire pressure monitoring system further comprises a controller (processor logic array 220, Fig. 7) wherein the piezoelectric sensor and the controller are encapsulated together in a package (Fig. 9C shows components 334 in housing 310).

As to claim 32, Handfield et al. further disclose a motorized vehicle (col. 1 line 16) including the tire pressure monitoring system, the motorized vehicle comprising a wheel including a tire, the tire pressure monitoring system physically coupled to the wheel to monitor air pressure of the tire (Figs. 9B and 9C).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-11, 21-27, 34, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,663,496 to Handfield et al., as applied to claims 1 and 16 above, and further in view of Published U.S. Application No. 2005/0179530 by Stewart et al.

As to claim 7, Handfield et al. fail to explicitly disclose setting a counter at a first predetermined value, determining that the output signal is below the predetermined threshold during a sampling time, changing the counter value in response to the determining that the output signal is below the predetermined threshold, determining that the counter value is a second predetermined value and setting the tire pressure monitoring system to the first operating mode in response to the determining that the counter value is the second predetermined value.

Stewart et al. disclose setting a counter at a first predetermined value, determining that the output signal is below the predetermined threshold during a sampling time, changing the counter value in response to the determining that the output signal is below the predetermined threshold, determining that the counter value is a second predetermined value and setting the tire pressure monitoring system to the first operating mode in response to the determining that the counter value is the second predetermined value (Fig. 12 and paragraphs 98-104 detailing the process for switching modes, e.g. from normal mode to sleep mode).

It would have been obvious to one of ordinary skill in the art to modify the method of Handfield et al. to include the steps implementing the counter of Stewart et al. in order to confirm that the state of motion has changed, reducing the chance of erroneous signals causing unnecessary activation of the system.

As to claim 8, Stewart et al. further disclose amplifying the output signal of the piezoelectric sensor (shock sensor interface 306 amplifies the signal; Fig. 3 and paragraph 56).

As to claim 9, Stewart et al. further disclose amplifying the output signal of the piezoelectric sensor intermittingly, wherein the determining is performed when the output signal is being amplified (multiplexing; paragraphs 56 and 59).

As to claim 10, Stewart et al. further disclose that the amplifying is controlled by the assertion of a sample signal (shock sensor interface operates in response to control signals; paragraph 56) from a controller of the tire pressure monitoring system (microprocessor core 302; Fig. 3 and paragraph 56).

As to claim 11, Stewart et al. further disclose that the setting the tire pressure monitoring system to the second operating mode based upon the determination that an output signal of the piezoelectric sensor is above a predetermined threshold further includes determining that the output signal is above the predetermined threshold for at least a second occurrence within a predetermined time before setting the tire pressure monitoring system to the second operating mode (Fig. 12 and paragraphs 98-104 detailing the process for switching modes, e.g. from sleep mode to normal mode).

As to claim 21, Handfield et al. fail to explicitly disclose a comparator having an input coupled to the output of the piezoelectric sensor and an output for providing and indication that the output signal of the piezoelectric sensor is greater than a predetermined threshold, the motion indication is based upon the output of the comparator.

Stewart et al. disclose a comparator having an input coupled to the output of the piezoelectric sensor and an output for providing and indication that the output signal of the

piezoelectric sensor is greater than a predetermined threshold (paragraph 79 and comparator; Fig. 4) the motion indication is based upon the output of the comparator (paragraph 79).

It would have been obvious to one of ordinary skill in the art to modify the tire pressure monitoring system of Handfield et al. by including the comparator of Stewart et al. in order to increase reliability of the motion switch function of the system (Stewart et al; paragraphs 79 and 80).

As to claim 22, Stewart et al. further disclose a controller (microprocessor core 302; Fig. 3) wherein the motion detection system further comprises a counter, the counter being reset to a first predetermined value each time the comparator output indicates that the output signal of the piezoelectric sensor is greater than the predetermined threshold (paragraph 86) the counter counting each time the comparator indicates that the output signal of the piezoelectric sensor is not greater than a predetermined threshold during an assertion of a sample signal from the controller when a count value of the counter is not a second predetermined value (paragraphs 99-101 and Fig. 12) wherein the motion indication is based on the count value of the counter (paragraph 101 and Fig. 12).

As to claim 23, Stewart et al. further disclose a controller (microprocessor core 302; Fig. 3) wherein the motion detection system further comprises a counter, the counter counting each time the comparator indicates that the output signal of the piezoelectric sensor is not greater than the predetermined threshold during an assertion of a sample signal from the controller when a counter value of the counter is not at a predetermined value (paragraph 101 and Fig. 12) wherein the motion indication is at a state indication motion when the counter value is not at the predetermined value (paragraphs 101 and 102 and Fig. 12).

As to claim 24, Stewart et al. further disclose that the motion indication is at a state indicating no motion when the counter value is at the predetermined level (less than 3; Fig. 12).

As to claim 25, Stewart et al. further disclose that the motion detection system further comprises an amplifier having an input coupled to the output of the piezoelectric sensor and an output coupled to the input of the comparator (Fig. 4).

As to claim 26, Stewart et al. further disclose that the motion detection system further comprises an amplifier having an input coupled to the output of the piezoelectric sensor (Fig. 4) the amplifier amplifying the output signal when turned on (circuits turned on; paragraph 84, amplifier amplifying signal; paragraph 59) wherein the controller provides a sample signal (paragraphs 84 and 85) wherein the motion detection system further includes circuitry to turn on the amplifier during an assertion of the sample signal (paragraph 93 and Fig. 11).

As to claim 27, Stewart et al. further disclose that the first operating mode is characterized as being a lower power operating mode than the second operating mode (paragraph 84).

As to claim 34, Stewart et al. further disclose that the motion detection system comprises a counter (paragraph 100) the counter preventing the tire pressure monitoring system from operating in the second mode until after at least two samples of the output signal from the piezoelectric sensor are above a predetermined threshold (paragraphs 98-105 and Fig. 12).

As to claim 37, Stewart et al. further disclose a controller (microprocessor core 302; Fig. 3) wherein at least some of the operations of the motion detection system are performed by the controller (paragraph 87).

As to claim 38, Handfield et al. disclose a tire pressure monitoring system comprising a pressure sensor having an output for providing an indication of a sensed pressure inside a tire (pressure sensor 16; Fig. 1 and col. 6, lines 46-59) a controller (function generator 30 and detection circuits 36 and 38) having an input for sampling an indication of the sensed pressure at a first rate during a first operating mode and for sampling an indication of the sensed pressure at a second rate during a second operating mode (system off, or system in power saving mode, col. 11, line 35 to col. 12, line 2 and col. 6, lines 46-59) the second sample rate being greater than the first sample rate (col. 11, line 64 to col. 12, line 2) a motion detection circuit comprising a piezoelectric sensor for sensing vibration of a wheel rotating over a surface (col. 12, lines 11-14) the piezoelectric sensor having an output to provide an output signal indicative of an amplitude of the sensed vibration (col. 12, lines 3-19) and a transmitter operably coupled to the controller (transmitter 22, Fig. 1) wherein the controller initiates transmitting by the transmitter of the information at a first transmitting rate during the first operating mode (power saving mode; col. 11, line 65 and transmitter activated with a frequency) wherein the first transmitting rate is less than the first sample rate (sensor is sampled at a higher rate than the transmission rate, the result of which can trigger unscheduled transmissions; col. 11, lines 25-34 and 49-68) wherein the controller initiates transmitting by the transmitter of the information at a second transmitting rate during the second operating mode wherein the second transmitting rate is greater than the first transmitting rate (col. 11, lines 64-67) and is less than the second sample rate (transmitter unit transmits data to the receiver of the controller at periodic intervals; col. 11, lines 10-14 and sensor is sampled at a higher rate than the transmission rate, the result of which can trigger unscheduled transmissions; col. 11, lines 25-34 and 49-68). Handfield et al. fail, however, to

explicitly disclose an amplifier having an input coupled to the output of the piezoelectric sensor and an output and a comparator having an input coupled to the output of the amplifier, the output of the comparator providing an indication that the output signal of the piezoelectric sensor is greater than a predetermined threshold wherein the operating mode of the tire pressure monitoring system is based upon the comparator output.

Stewart et al. disclose an amplifier having an input coupled to the output of the piezoelectric sensor and an output (Fig. 4) a comparator having an input coupled to the output of the amplifier (Fig. 4) the output of the comparator providing an indication that the output signal of the piezoelectric sensor is greater than a predetermined threshold (paragraph 79 and comparator; Fig. 4) wherein the operating mode of the tire pressure monitoring system is based upon the comparator output (paragraph 79).

It would have been obvious to one of ordinary skill in the art to modify the tire pressure monitoring system of Handfield et al. by including the amplifier and comparator of Stewart et al. in order to increase reliability of the motion switch function of the system (Stewart et al; paragraphs 79 and 80) reducing the chance of erroneous signals causing unnecessary activation of the system.

Claims 12, 13, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,663,496 to Handfield et al., as applied to claims 1 and 16 above, in view of U.S. Pat. No. 4,991,439 to Betts.

As to claim 12, Handfield et al. fail to disclose that the piezoelectric sensor is encapsulated in an encapsulant that includes one of a thermo-plastic material or a thermo set material.

Betts discloses a piezoelectric sensor encapsulated in an encapsulant that includes a thermo-plastic material or a thermo set material (col. 6, lines 47-52).

It would have been obvious to one of ordinary skill in the art to modify the tire pressure monitoring system of Handfield et al. by including the hard plastic encapsulant of Betts in order to enhance the sensitivity of the piezoelectric sensor to minor stress forces (Betts; col. 7, lines 46-55).

As to claim 13, Betts further discloses that the encapsulant functions to amplify the vibration sensed by the piezoelectric sensor (col. 6, lines 46-51).

As to claim 28, Handfield et al. further disclose that the piezoelectric sensor is made of a piezoelectric material having a first Young's Modulus (inherent in that all materials have a Young's Modulus). Handfield et al. fail, however, to disclose that the piezoelectric sensor is encapsulated in an encapsulant having a second Young's Modulus that is more elastic than the first Young's Modulus.

Betts discloses a piezoelectric sensor encapsulated in an encapsulant (col. 6, lines 47-52) having a second Young's Modulus (inherent) that is more elastic than the first Young's Modulus (the piezoelectric ceramic of the piezoelectric vibration sensor of Handfield et al. is inherently less elastic than the plastic disclosed in Betts).

It would have been obvious to one of ordinary skill in the art to modify the tire pressure monitoring system of Handfield et al. by including the hard plastic encapsulant of Betts in order to enhance the sensitivity of the piezoelectric sensor to minor stress forces (Betts; col. 7, lines 46-55).

As to claim 29, Betts further discloses that the encapsulant functions to amplify the vibration sensed by the piezoelectric sensor (col. 6, lines 46-51).

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,663,496 to Handfield et al., as applied to claims 16 and 30 above, in view of U.S. Pat. No. 6,891,239 to Anderson et al.

Handfield et al. fail to disclose a lead frame having a first side and a second side, the piezoelectric sensor being mounted on the first side and the controller being implemented in an integrated circuit die mounted on the second side, wherein at least a portion of the lead frame is encapsulated with the piezoelectric sensor and the controller.

Anderson et al. disclose a lead frame having a first side and a second side (package substrate 52 and solder ball connections 60; Fig. 3 and col. 5 lines 17-33) a MEMs sensor being mounted on the first side (col. 5, lines 17-22) and a controller implemented in an integrated circuit die mounted on the second side (14, 18, 20 and 22; Fig. 3 and col. 5, lines 29-34) wherein at least a portion of the lead frame is encapsulated with the MEMs sensor and the controller (potting 100 and silicone rubber 120; Fig. 4; col. 6, lines 19-30).

It would have been obvious to one of ordinary skill in the art to modify the tire pressure monitoring system of Handfield et al. by mounting the piezoelectric sensor and controller on opposite sides of a package substrate as taught by Anderson et al. in order to reduce the size of the sensor and controller package, increase performance by reducing signal path length and thereby reduce parasitic capacitance and noise and reduce the number of electrical interconnections in the device (Anderson et al. col.1, lines 47-60 and col. 5, lines 60-67).

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,663,496 to Handfield et al. as applied to claim 16, in view of U.S. Pat. No. 3,185,869 to Shoor.

Handfield et al. fail to explicitly disclose a capacitive element coupled in series to the output of the piezoelectric sensor for increasing a sensitivity of the output signal of the piezoelectric sensor.

Shoor discloses a capacitive element (capacitor 50'; Fig. 5) coupled in series to the output of a piezoelectric element (X; Fig. 5) for increasing a sensitivity of the output signal of the piezoelectric element (col. 4, lines 63-71).

It would have been obvious to one of ordinary skill in the art to modify the tire pressure monitoring system of Handfield et al. by including the capacitor of Shoor, in series with the piezoelectric sensor in order to increase the sensitivity of the output of the sensor as taught by Shoor.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,663,496 to Handfield et al., as applied to claim 16, in view of U.S. Pat. No. 5,178,016 to Dauenhauer et al.

Handfield et al. fail to disclose a shunt resistive element coupled in parallel to the output of the piezoelectric sensor for decreasing a sensitivity of the output signal of the piezoelectric sensor.

Dauenhauer et al. disclose a shunt resistive element (load resistor 106; Fig. 7) coupled in parallel to the output of a piezoelectric sensor (shear element 88; Fig. 7) for decreasing a sensitivity of the output signal of the piezoelectric sensor (col. 4 lines 56-68).

It would have been obvious to one of ordinary skill in the art to modify the tire pressure monitoring system of Handfield et al. by including the resistor of Dauenhauer, in parallel with the piezoelectric sensor in order to decrease the sensitivity of the output or the sensor as taught by Dauenhauer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George P. Bonanto whose telephone number is (571) 272-2182. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GPB

DAVID M. GRAY
PRIMARY EXAMINER